



SERVICE INFORMATION LETTER

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OXYGEN - ATA CHAPTER 35

VENDOR CODE: 53655

ADDITION OF A LATENT LEAKAGE TEST TO THE TESTING OF THE P/N 897 SERIES CYLINDER & VALVE ASSEMBLY

1. BACKGROUND

- A. A latent leak test will be added to the Testing & Fault Isolation section of CMM 35-21-93 P/N 897 Series Cylinder & Valve Assembly. The external leak test will be revised to allow two different methods. These tests will be incorporated into the CMM at the next revision. After these tests are added to the CMM, this SIL will no longer be current.
- B. You are authorized to copy this SIL. If you copy this SIL, you must copy all of the SIL.

2. EFFECTIVITY

This SIL affects all end items in the 897 Series whether removed from an aircraft or from spares inventory.

3. MATERIALS

Table 1
Special Tools

NOMENCLATURE	PART NUMBER	MANUFACTURER (VENDOR CODE)
Calibrated Gauge 0-3000 psig (0-20.68 MPa) Accuracy $\pm 1.0\%$ of span	1409 Series	Ametek (US Gauge) Feasterville, PA 19053 USA (V61349)
Cap (0.903-14 NGO-RH)	n/a	Local Vendor

Table 2
Consumable Materials

MATERIAL	DESCRIPTION	MANUFACTURER (VENDOR CODE)
Leak Test Solution	Sherlock Leak Detector MIL-PRF-25567, Type 1	Winton Products Co. Inc. Charlotte, NC 28236 USA (V23316)
Rust Inhibiting Leak Test Solution	5 cc per gallon (3.79 liters) of water, of a base solution specified in NOTE 1, dissolved in one gallon (3.79 liters) of water.	Fisher Scientific Pittsburg, PA 15275 USA (V1KP78)
Oxygen 1850 psig (12.76 MPa) minimum pressure	MIL-PRF-27210, Type I	Local Vendor
NOTE 1: Base solution is comprised of the following: Sodium Chromate (160 grams) combined with Glacial Acetic Acid (150 cc) dissolved in water (1840 cc).		



4. ACCOMPLISHMENT OF SIL

A. Functional Testing

This SIL changes the test procedures in the TESTING AND FAULT ISOLATION and ASSEMBLY sections of CMM 35-21-93.

B. Perform this Latent Leak Test and the External Leak Test at the time of the next service or overhaul.

WARNING: FAILURE TO USE ONLY PURE, TEST GAS (NOT OIL PUMPED) MAY CAUSE AN EXPLOSION OR FIRE RESULTING IN SERIOUS PERSONAL INJURY OR DEATH.

C. Oxygen contaminated with oil can ignite with explosive force. Do not, under any circumstances use oil pumped test gas. Even a minute quantity of oil will cause contamination of the CVA and test equipment.

Table 2
Cylinder Charging Pressure and Temperature Data

TEMPERATURE °F (°C)	NOMINAL 1800 psig (12.41 MPa) CHARGING PRESSURE psig (MPa)	NOMINAL 1850 psig (12.76 MPa) CHARGING PRESSURE psig (MPa)
100 (37.8)	1935 (13.34)	1985 (13.69)
95 (35.0)	1910 (13.17)	1960 (13.51)
90 (32.2)	1890 (13.03)	1935 (13.34)
85 (29.4)	1870 (12.89)	1910 (13.17)
80 (26.7)	1850 (12.76)	1885 (13.00)
75 (23.9)	1825 (12.58)	1865 (12.86)
70 (21.1)	1800 (12.41)	1850 (12.76)
65 (18.3)	1775 (12.248)	1825 (12.58)
60 (15.6)	1750 (12.07)	1800 (12.41)
55 (12.8)	1730 (11.93)	1775 (12.24)
50 (10.0)	1710 (11.79)	1750 (12.07)

WARNING: FAILURE TO FULLY DISCHARGE THE OXYGEN FROM THE CVA, COMPONENT PARTS, OR TEST SETUP PRIOR TO DISASSEMBLY OF ANY PART MAY CAUSE SERIOUS PERSONAL INJURY OR DEATH.

D. High pressure oxygen is a hazardous material. When pressurized oxygen is discharged intentionally or due to equipment failure, the released energy can be highly destructive if not properly controlled. Fully discharge the oxygen from the CVA, component parts, and test setup prior to disassembly of any part.

WARNING: FAILURE TO REFER TO AND FOLLOW APPLICABLE MANUFACTURER'S OR SUPPLIER'S MATERIAL SAFETY DATA SHEET (MSDS) BEFORE USING CONSUMABLE TEST MATERIALS SPECIFIED IN THIS MANUAL, MAY RESULT IN SERIOUS PERSONAL INJURY, ILLNESS, OR DEATH.

E. Some consumable test materials used in this manual may be toxic under certain conditions. Material Safety Data Sheets provide information on chemical makeup, properties, and precautions for handling potentially hazardous substances which may affect health risks, storage, disposal, and other workplace safety factors.



F. Cylinder and Valve Assembly Test Procedures

Add this Latent Leakage Test after paragraph 7.A. in the TESTING AND FAULT ISOLATION section of the CMM. Refer to SIL-35-57 for the Test Data Sheet.

- (1) Latent Leakage Test for the Slow Opening Valve Body Assembly (40, -41, -42, IPL Fig. 1). Refer to IPL Fig. 1, unless noted otherwise.
 - (a) Refer to the ASSEMBLY section and install the body assembly (40, -41, -42) on the cylinder (5 thru -5D).
 - (b) Refer to the ASSEMBLY section and charge the CVA to 1800 – 1850 psig (12.4 – 12.8 MPa).
 - (c) Connect the calibrated gauge (Table 1) to the valve outlet. Using the calibrated gauge, determine the cylinder pressure in accordance with Table 2.
 - (d) Disconnect the calibrated gauge from the valve outlet. With the outlet cap assembly (Table 1) installed, and the valve in the open position, store the cylinder and valve assembly for 48 hours minimum.
 - (e) Remove the cap assembly, and connect the calibrated gauge (Table 1) to the valve outlet. Using the calibrated gauge, verify that the cylinder pressure is still in accordance with Table 2.
 - (f) Refer to Table 103 in the TESTING AND FAULT ISOLATION section of the CMM for troubleshooting.

- (2) External Leakage Test for the Slow Opening Valve Body Assembly (40, -41, -42, IPL Fig. 1)

Do either (a) or (b) below in place of the External Leakage Test in paragraph 7.B. of the TESTING AND FAULT ISOLATION section of the CMM.

(a) Non-immersion method

- 1 Install the outlet cap assembly (Table 1) on the valve body (115, IPL Fig. 3) outlet. Tighten the cap assembly wrench tight.
- 2 Slowly rotate the valve handle (40, IPL Fig. 3) counterclockwise (approximately 3 complete turns) until the valve is in the half-open position.
- 3 Brush the Leak Test Solution (Table 2) on all areas of the valve where external leakage can occur and on the mating threads between the valve and the cylinder (5 thru -5D, IPL Fig. 1). Bubbles will show where the leaks are.
- 4 Rotate the handle clockwise until the valve is in the closed position. Slowly open and close the valve two more times. Rotate the handle counterclockwise until the valve is in the full-open position.
- 5 Repeat Paragraph 4.F.(2)(a)4 with the valve in the full-open position.
- 6 Bubbles in the in the Leak Test Solution indicate leakage. No bubbles are allowed.
- 7 Rotate the handle clockwise until the valve is in the closed position.
- 8 Dry the CVA using clean, dry air that is oil-free.
- 9 Discharge the oxygen from the valve by slowly removing the cap assembly from the valve outlet.
- 10 Re-install the cap assembly (Table 1) on the valve body (115, IPL Fig. 3) per the instructions in the ASSEMBLY section of the CMM.



(b) Immersion method

- 1 Install the cap assembly (Table 1) on the valve body (115, IPL Fig. 3) per the instructions in the ASSEMBLY section of the CMM.
- 2 With the valve approximately half open, immerse the valve and cylinder neck in a container of Rust Inhibiting Leak Test Solution (Table 2).
- 3 There shall be no evidence of leakage when observed for 2 minutes except as stated in paragraph 4.F.(2)(b)5.
- 4 Cycle the valve (from open to closed to fully open) 2 times and repeat steps 4.F.(2)(b)2 and 4.F.(2)(b)3.
- 5 External leakage, if present, must not exceed 5 cc/hr (0.083 cc/min) (approximately 3 bubbles in 2 minutes).
- 6 Dry the CVA using clean, dry air that is oil-free. Then close the valve.

5. Reference Documents

- A. CMM 35-21-93 P/N 897 Series Cylinder & Valve Assembly
- B. SIL-35-57 Test Data Sheet for CMM 35-21-93

6. TO CONTACT AVOX SYSTEMS:

- A. Use the contact information below to get a copy of a CMM or the revision status of a publication. Give the AVOX Systems part number and the aircraft model when you request a CMM copy.

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- C. To buy replacement parts for an AVOX Systems component, contact any IN-Services location listed in Section B above.